

**AMENDMENTS TO THE CLAIMS:**

This listing of the claims will replace all prior versions, and listings, of the claims in this application.

**Listing of Claims:**

1. (Currently Amended) A method to process a text document, comprising:

partitioning text of the text document and assigning semantic meaning to words of the partitioned text, where assigning comprises applying a plurality of regular expressions, rules and a plurality of dictionaries to recognize chemical name fragments;

recognizing any substructures present in the chemical name fragments;

determining structural connectivity information of the chemical name fragments and recognized substructures;

extracting information associated with the recognized chemical name fragments and substructures of the text document and indexing the extracted information in a text index;

indexing representations of the recognized chemical name fragments and the substructures in association with the determined structural connectivity information into a plurality of chemical connectivity tables;

storing the text index in association with the indexed representations in a searchable index; and

providing a graphical user interface to search the searchable index, where the search comprises entering one or more chemical fragment names and entering one or more substructures in the a representation form, where the entering is by at least one of text form or graphical selection.

2. (Previously Presented) A method as in claim 1, wherein the extracting further comprises extracting keywords from the text document and indexing the keywords in the text index, and wherein the search comprises selecting a graphical representation of one or more substructures and additionally entering at least one keyword.

3. (Currently Amended) A method as in claim 1, wherein extracting further comprises extracting keywords from the text document and indexing the keywords in the text index, and wherein the search comprises additionally entering at least one keyword, and at least one of chemical name fragment connectivity and substructure connectivity.

4. (Canceled)

5. (Canceled)

6. (Previously Presented) A method as in claim 1, wherein the search further comprises entering at least one search term, and where a search results in an intersection of the indexed representations and the text index, identifying at least one document that contains a reference to a

corresponding chemical compound.

7. (Currently Amended) A method as in claim 1, where determining structural connectivity information comprises looking up recognized chemical name fragments and substructures in a structure dictionary.

8. (Previously Presented) A method as in claim 1, where the representations comprise MOL type representations and SMILES type representations.

9. (Original) A method as in claim 1, where said plurality of dictionaries comprise a dictionary of common chemical prefixes and a dictionary of common chemical suffixes.

10. (Original) A method as in claim 1, where said plurality of dictionaries comprise a dictionary of stop words to eliminate erroneous chemical name fragments.

11. (Original) A method as in claim 1, further comprising filtering recognized chemical name fragments using a list of stop words to eliminate erroneous chemical name fragments.

12. (Original) A method as in claim 1, where chemical name fragments are further recognized by using common chemical word endings.

13. (Original) A method as in claim 1, where application of said regular expressions and rules

results in punctuation characters being one of maintained or removed between chemical name fragments as a function of context.

14. (Original) A method as in claim 1, where said regular expressions comprise a plurality of patterns, individual ones of which are comprised of at least one of characters, numbers and punctuation.

15. (Original) A method as in claim 14, where the punctuation comprises at least one of parenthesis, square bracket, hyphen, colon and semi-colon.

16. (Original) A method as in claim 14, where the characters comprise at least one of upper case C, O, R, N and H.

17. (Original) A method as in claim 14, where the characters comprise strings of at least one of lower case xy, ene, ine, yl, ane and oic.

18. (Original) A method as in claim 1, comprising an initial step of tokenizing the document to provide a sequence of tokens.

19. (Currently Amended) A system to process a text document, comprising:

a unit to partition text of the text document and to assign semantic meaning to words of the

partitioned text, where assigning comprises applying a plurality of regular expressions, rules and a plurality of dictionaries to recognize chemical name fragments;

a unit to recognize any substructures present in the chemical name fragments;

a unit to extract information associated with the recognized chemical name fragments and substructures of the text document and index the extracted information in a text index;

a unit to determine structural connectivity information of the chemical name fragments and recognized substructures and to index representations of the chemical name fragments and the recognized substructures in association with the determined structural connectivity information into a plurality of chemical connectivity tables;

a unit to store the text index in association with indexed representations in a searchable index;  
and

a unit to provide a graphical user interface to search the searchable index, where the search comprises entering one or more chemical fragment names and entering one or more substructures in ~~the~~ a representation form, where the entering is by at least one of text form or graphical selection.

20. (Previously Presented) A system as in claim 19, wherein the unit to extract is further to

extract keywords from the text document and index the keywords in the text index, and wherein the search comprises selecting a graphical representation of one or more substructures and additionally entering at least one keyword.

21. (Currently Amended) A system as in claim 19, wherein the unit to extract is further to extract keywords from the text document and index the keywords in the text index, and wherein the search comprises additionally entering at least one keyword, and at least one of chemical name fragment connectivity and substructure connectivity.

22. (Canceled)

23. (Canceled)

24. (Previously Presented) A system as in claim 19, wherein the search further comprises entering at least one search term and wherein a search results in an intersection of the indexed representations and the text index, to identify at least one document that contains a reference to a corresponding chemical compound.

25. (Original) A system as in claim 19, where said unit that determines structural connectivity information looks up recognized fragments and substructures in a structure dictionary.

26. (Previously Presented) A system as in claim 19, where the representations comprise MOL

type representations and SMILES type representations.

27. (Original) A system as in claim 19, where said plurality of dictionaries comprise a dictionary of common chemical prefixes and a dictionary of common chemical suffixes.

28. (Original) A system as in claim 19, where said plurality of dictionaries comprise a dictionary of stop words to eliminate erroneous chemical name fragments.

29. (Original) A system as in claim 19, further comprising a unit to filter recognized chemical name fragments using a list of stop words to eliminate erroneous chemical name fragments.

30. (Original) A system as in claim 19, where chemical name fragments are further recognized by using common chemical word endings.

31. (Original) A system as in claim 19, where application of said regular expressions and rules results in punctuation characters being one of maintained or removed between chemical name fragments as a function of context.

32. (Original) A system as in claim 19, where said regular expressions comprise a plurality of patterns, individual ones of which are comprised of at least one of characters, numbers and punctuation.

33. (Original) A system as in claim 32, where the punctuation comprises at least one of parenthesis, square bracket, hyphen, colon and semi-colon.

34. (Original) A system as in claim 32, where the characters comprise at least one of upper case C, O, R, N and H.

35. (Original) A system as in claim 32, where the characters comprise strings of at least one of lower case xy, ene, ine, yl, ane and oic.

36. (Original) A system as in claim 19, further comprising an input tokenizer unit to receive documents to be processed to provide a sequence of tokens.

37. (Currently Amended) A computer program product for storing in a computer readable form a set of computer program instructions for directing at least one computer to process text of a text document, comprising:

instructions to parse the text of the text document to recognize chemical name fragments;

instructions to recognize any substructures present in the chemical name fragments;

instructions to extract information associated with the recognized chemical name fragments and substructures of the text document and index the extracted information in a text index;



instructions to determine structural connectivity information of the chemical name fragments and recognized substructures;

instructions to index representations of the chemical name fragments and the recognized substructures in association with the determined structural connectivity information into a plurality of chemical connectivity tables;

instructions to store the ~~the~~ text index in association with the indexed representations in a searchable index; and

instructions to provide a graphical user interface to search the searchable index, where the search comprises entering one or more chemical fragment names and entering one or more substructures in ~~the~~ a representation form, where the entering is by at least one of text form or graphical selection.

38. (Currently Amended) A computer program product as in claim 37, wherein the instructions to extract information further extract keywords from the text document and index the keywords in the text index, and wherein the search comprises selecting a graphical representation of one or more substructures and additionally entering at least one keyword.

39. (Currently Amended) A computer program product as in claim 37, wherein the instructions to extract information further extract keywords from the text document and index the keywords in

the text index, and wherein the search comprises additionally entering at least one keyword and at least one of fragment connectivity and substructure connectivity.

40. (Cancelled)

41. (Canceled)

42. (Previously Presented) A computer program product as in claim 37, wherein the search further comprises entering at least one search term, and where a search results in an intersection of the indexed representations and the text index, to identify at least one document that contains a reference to a corresponding chemical compound.

43. (Currently Amended) A system comprising a plurality of computers at least two of which are coupled together through a data communications network, said system comprising:

a unit to parse text of a text document to recognize chemical name fragments; a unit to recognize any substructures present in the chemical name fragments;

a unit to extract information associated with the recognized chemical name fragments and substructures from the text document and index the extracted information in a text index;

a unit to determine structural connectivity information of the chemical name fragments and

recognized substructures;

a unit to index representations of the chemical name fragments and the recognized substructures in association with the determined structural connectivity information into a plurality of chemical connectivity tables;

a unit to store the the text index in association with the indexed representations in a searchable index; and

a unit to provide a graphical user interface to search the searchable index, where the search comprises entering one or more chemical fragment names and entering one or more substructures in ~~the~~ a representation form, where the entering is by at least one of text form or graphical selection.

44. (Previously Presented) A system as in claim 43, wherein the the search further comprises entering at least one search term, and wherein a search results in an intersection of a the indexed representations and the text index, to identify at least one document that contains a reference to a corresponding chemical compound.

45. (Original) A system as in claim 43, where said unit that determines structural connectivity information looks up recognized fragments and substructures in a structure dictionary.

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46. (Previously Presented) A system as in claim 43, where the representations comprise MOL type representations and SMILES type representations.